

Appn. Number 10/653,678 Michael John Keogh Nguyen/2831 Amnt.C

Applicant's Summary of Telephone Contact 07/12/2005

Applicant discussed with examiner C. Nguyen the substance of the Office Action, final, mailed 06/22/2005. Below in amendment form is the result of this discussion.

Rejection of Claims 35,42,43,46,50 and 51 Under 35 U.S.C. 102(b)

Claims were rejected as being anticipated by Caimi (6,339,189).

Applicant discussed the substantial difference between the first independent claim in Caimi and his invention. Caimi teaches in his specification and in Claim 1 that the flame retardant system in the outer layer of his dual layer construction is based solely on an **inorganic filler**. Further he discloses in claims 12, 13, and 15 and 16 that the filler is a metal oxide or metal hydroxide. He specifies in claims 15 and 16 that the filler is a magnesium oxide or hydroxide. Applicant notes that the composition of the outer layer in his invention is based only on **organic materials**. Specifically, the active intumescent thermal barrier materials are identified as melamine or melamine derivatives and combinations thereof. Applicant's Claims 35 and 43 are amended to more clearly highlight the substantial difference between his organo materials and the inorganics.

Rejection of Claims 35,36 and 39 Under 35 U.S.C. 103(a)

Claims 35,36 and 39 were rejected under 35 U.S.C. 103(a) as being unpatentable over Caimi in view of Dickinson (5,173,960). Dickinson discloses a cable comprising a sheath surrounding a plurality of insulated wires but his compositions add nothing to Caimi. Dickinson's flame retardant system is based on mixtures of inorganic fillers particularly basic and amphoteric metal oxides.

Rejection of Claims 37 and 38 Under 35 U.S.C. 103(a)

Claims 37 and 38 were rejected as unpatentable over Caimi in view of Dickinson and further in view of Fishler et al. (4,404,297).

To appreciate why Caimi/Dickinson can not be combined with Fishler to provide flame retardance requires a discussion of the mechanism of intumescence in the organo-based systems. Under thermal stress (> 250 C) the melamine phosphate derivatives begin decomposition to produce phosphorous acids. (Relatively strong acids at room temperature and very strong and reactive acids at temperatures in excess of 250C). Once produced the phosphorous acids react with the weakly basic melamine resinous materials producing charred and combustion resistant material that is intumesced (blown by the nitrogenous gases also being produced as by-products of the melamine decomposition reaction).

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The effectiveness of this process to yield the thermal barrier depends on a series of complex chemical reactions that must occur without interference at any step in the process. The inorganic fillers of Caimi/Dickinson, metal oxides or hydroxides, as bases will react quantitatively to neutralize the phosphorous acids as they are produced. Neutralization ends any chance of intumescence occurring. Moreover neutralization results in total loss of the flame retardance expected from the inorganic fillers.

The two keys to applicant's invention are: firstly, employing the otherwise antagonistic flame retardant systems in separate layers and secondly, placement of the layers to acquire synergism instead of antagonism. Specifically, the outer intumescent system generates a thermal protective barrier. The barrier once formed effectively insulates the inner flame retardant layer from rapid heat up in a fire event. In this way the effectiveness of the metal hydrate flame retardant system is maximized to provide for long term flame retardance under the most severe fire conditions.

Rejection of Claims 40 and 41 Under 35 U.S.C. 103(a)

Claims 40 and 41 were rejected under 35U.S.C. 103(a) as being unpatentable over Caimi in view of Dickinson and further in view of Keough (5,698,323).

The composition of Keough was developed for jacket application wherein electrical properties are not a concern. Caimi's application is specific to acquire wet insulation resistance at elevated temperature. One skilled in the art recognizes that employing Keough's composition of high polar comonomer and polar filler in the inner layer would not provide any degree of insulation resistance in 75C water. The polarity of the resin and filler coupled with the fact that the resin system is thermoplastic ie., melts below the water temperature, offers no opportunity for insulation resistance. Failure would be immediate.

Rejection of Claims 44 and 45 Under 35 U.S.C. 103(a)

The arguments presented above for the antagonism resulting from the combination of these technologies apply here as well.

Rejection of Claims 47-49 Under 35 U.S.C. 103(a)

The previous argument against the Caimi reference having disclosed the invention as claimed applies to overcome this rejection. Moreover the Kikuchi composition lacks the necessary formulation components, coupling agents, for wet insulation resistance.


Conclusion

For the reasons above, applicant submits the specification and claims are now in proper form and that the claims all define patentability over the prior art. Therefore he submits that this application is now in condition for allowance, which action is respectfully solicited.

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Conditional Request for Constructive Assistance

Applicant has amended the claims of this application so that they are proper, definite, and define novel and unobvious matter. If, for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very Respectfully,

Michael John Keogh

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Certificate of Mailing: I certify that this correspondence, and attachment, if any, will be deposited with the United States Postal Service by first class mail, postage paid, in an envelope addressed to Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, Va 22313-1450 on the date below.

Date: July 17, 2005

Inventor's Signature :

